



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,405	01/02/2004	Jeong Chae Youn	2950-0253P	2851

2292 7590 12/07/2007  
BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
----------

THOMPSON, JR, OTIS L

ART UNIT	PAPER NUMBER
----------	--------------

4183

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

12/07/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/749,405	<b>Applicant(s)</b> YOUN, JEONG CHAE	
	<b>Examiner</b> Otis L. Thompson, Jr.	<b>Art Unit</b> 4183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomishima (US 6,032,276).
2. As to claim 1, Tomishima discloses a defect study method that is performed in an optical disc drive. A sequential reading operation is started at the beginning of the inner radius of the optical disc, and data is continuously read radially outward until defective data is detected. Error correction is performed by continuously reducing the revolution speed of the recording medium until the error is corrected (Column 3, lines 21-39).

As to claim 2, Tomishima discloses that his invention provides an apparatus and a method for increasing the reading speed of an optical disc by eliminating the retry operations when defective data is encountered. The defect study determines the positions of defective data and the revolution speed at which defective data can be read during an initial reading of data or during idle non-reading operating time. The results of the defect study are stored in memory so that the revolution speed is automatically reduced, according to the defect study results, to provide error correction without interrupting or increasing disk access time (Column 1, lines 39-49, lines 54-59).

As to claims 3 and 4 Tomishima discloses, referring to figure 1, that the revolution speed (read speed) of spindle motor 2 is generally set by a designation

corresponding to the label "speed" which is higher than the normal minimum speed x1.

The number of revolutions can be increased, and is respectively set up to XN where  $N > 1$ , for example x16 speed (Column 3, lines 14-20).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomishima (US 6,032,276) as applied to claim 1 above, and further in view of Harold-Barry (US 5,995,462).

5. Tomishima discloses the claimed invention above as well as the reducing of read speed when data reading has failed. Tomishima does not specifically disclose the temporary and sequential storage of data in a buffer wherein data reading is stopped at the occurrence of buffer overflow and is resumed from where it left off after a predetermined time elapses or when data in the buffer is reduced to a predetermined amount or less.

However, Harold-Barry discloses, referring to figure 3, that the CD controller 33 writes decoded data sequentially in the buffer memory 35 (FIFO buffer) after receiving data read from the disc by the read head 32. The address generator 36 also produces

sequential read addresses to allow the data to be read sequentially from the buffer memory 35. When the buffer memory becomes full, writing of data is inhibited for a time and then resumed from where the stop occurred when the buffer memory is emptied by a given amount or after a fixed number of revolutions of the disc (Column 7, lines 47-53 and 59-63). The purpose of this function is to provide continuous playback of data on the disc even when errors occur (Abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Harold-Barry into Tomishima in order to provide continuous playback of data on an optical disc.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 8, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomishima (US 6,032,276) as applied to claims 1 and 17 above respectively, and further in view of Kudora et al. (US 6,269,059 B1).

8. Tomishima discloses the claimed invention above. Tomishima further discloses that in the defect study method and apparatus, a search is performed to locate each position where defective data exists. The locations are stored in memory as Sub-Q data

(minutes, second, and frame – MSF) (Column 1, lines 60-63; Column 2-Column 3, lines 66-67, lines 1-3; Column 3, lines 48-58). Tomishima does not specifically disclose the use of ID information when the optical disc is a DVD.

Kudora et al. discloses that information that is recorded on a DVD is made up of a plurality of data sectors. One data sector is constructed of: ID information indicating the starting position of the data sector; an ID information error detection code (IED: ID Error Detection Code) for correcting the error of ID information; reset data; and data that is main information such as audio/video or computer data. This structure allows for disc identification and error detection.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to incorporate the teachings of Shim into Tomishima in order to enable DVD disc identification and error detection.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomishima (US 6,032,276) in view of Harold-Barry (US 5,995,462), and further in view of Kudora et al. (US 6,269,059 B1).

12. Tomishima discloses a 5) controls the entire system operation and the defect study simultaneously. The system sequential reading operation on an optical disc during which the system controller (Figure 1, label controller controls the revolution speed (disc read speed) of the spindle motor and sets that speed according to the label "speed". That speed is typically higher than the playback speed of the data on the disc, but when errors occur the revolution speed is decreased in order to enable error correction (Column 7, 15-39).

Tomishima further discloses that in the defect study method and apparatus, a search is performed to locate each position where defective data exists. The locations are stored in memory as Sub-Q data (minutes, second, and frame – MSF) (Column 1, lines 60-63; Column 2-Column 3, lines 66-67, lines 1-3; Column 3, lines 48-58).

Tomishima does not specifically disclose the sequential storage of read data in a buffer, and when data reading is stopped at the occurrence of buffer overflow, it is resumed from where it left off after a predetermined time elapses or when data in the

buffer is reduced to a predetermined amount or less. Tomishima also does not specifically disclose the use of ID information when the optical disc is a DVD.

However, Harold-Barry discloses, referring to figure 3, that the CD controller 33 writes decoded data sequentially in the buffer memory 35 (FIFO buffer) after receiving data read from the disc by the read head 32. The address generator 36 also produces sequential read addresses to allow the data to be read sequentially from the buffer memory 35. When the buffer memory becomes full, writing of data is inhibited for a time and then resumed from where the stop occurred when the buffer memory is emptied by a given amount or after a fixed number of revolutions of the disc (Column 7, lines 47-53 and 59-63). The purpose of this function is to provide continuous playback of data on the disc even when errors occur (Abstract).

Kudora et al. discloses that information that is recorded on a DVD is constructed of a plurality of data sectors. One data sector is constructed of: ID information indicating the starting position of the data sector; an ID information error detection code (IED: ID Error Detection Code) for correcting the error of ID information; reset data; and data that is main information such as audio/video or computer data. This structure allows for disc identification and error detection (Column 5, lines 35-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to combine the teachings of Harold-Barry and Kudora et al. with Tomishima in order to provide continuous playback of data on an optical disc and to enable DVD disc identification and error detection.



***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 13-16 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Harold-Barry (US 5,995,462) in view of Tomishima (US 6,032,276), and further in view of Kudora et al. (US 6,269,059 B1).

Harold-Barry discloses that a buffer read out rate that is half the buffer write rate and the sequential reading and reproduction of optical disc data(Column 7, lines 52-56). Harold-Barry does not specifically disclose whether Sub-Q CD information and DVD ID information are normally detected.

Harold-Barry also does not specifically disclose the selective variation of play speed, the lowering of current play speed based on a basic speed and abnormally detected address information, and play control retry when data reading has failed.

However, Tomishima discloses a defect study method that is performed in an optical disc drive for the purpose of eliminating retry operations. A sequential reading operation is started at the beginning of the inner radius of the optical disc, and data is continuously read radially outward until defective data is detected. Error correction is performed by continuously reducing the revolution speed of the recording medium until the error is corrected (Column 3, lines 21-39).

Tomishima also discloses, referring to figure 1, a system controller 5 that serves the purpose of controlling the revolution speed (read speed). The revolution speed (read speed) of spindle motor 2 is generally set by a designation corresponding to the label "speed" which is higher than the normal minimum speed x1. The number of revolutions can be increased, and is respectively set up to XN where  $N > 1$ , for example x16 speed (Column 3, lines 14-20).

Tomishima further discloses that in the defect study method and apparatus, a search is performed for the purpose of locating each position where defective data exists. The locations are stored in memory as Sub-Q data (minutes, second, and frame – MSF) (Column 1, lines 60-63; Column 2-Column 3, lines 66-67, lines 1-3; Column 3, lines 48-58). The defect study determines the positions of the defective data and the revolution speed at which defective data can be read during an initial reading of data or during idle non-reading operating time. The results of the defect study are stored in memory so that the revolution speed is automatically reduced, according to the defect

study results, to provide error correction without interrupting or increasing disk access time (Column 1, lines 39-49, lines 54-59).

Tomishima further discloses an example in which retry operations are attempted for the purpose of performing error correction when reading an optical disc. When a given revolution speed (read speed) is set to x8 speed, during error correction it is lowered to x4 speed. If the defective data still cannot be read, it is further reduced to x2 speed and so on until the minimum speed, if necessary, is reached (Column 3, lines 30-40).

Kudora et al. discloses that information that is recorded on a DVD is constructed of a plurality of data sectors. One data sector is constructed of: ID information indicating the starting position of the data sector; an ID information error detection code (IED: ID Error Detection Code) for correcting the error of ID information; reset data; and data that is main information such as audio/video or computer data. This structure allows for disc identification and error detection (Column 5, lines 35-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to combine the teachings of Tomishima and Kudora et al. with Harold-Barry in order to eliminate retry options when reading an optical disc, to control the revolution speed (read speed) of an optical disc, to locate positions where defective data exists on an optical disc, to perform error correction when reading an optical disc, and to allow for disc identification of a DVD.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suetomo et al. (US 6,747,927 B2) discloses a disc drive device that optimally controls a speed for reading RTR-format data, such as video and audio, recorded on a DVD.

Shim (US 5,970,208) discloses a digital video disc-reproducing device that uses single memory for both error correction and for data buffering.

Takagi et al. (US 6,115,337) discloses a vibration-resistant playback device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otis L. Thompson, Jr. whose telephone number is (571)270-1953. The examiner can normally be reached on Monday to Thursday 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 4183

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Otis L Thompson, Jr./  
Examiner, Art Unit 4183

November 29, 2007

/Len Tran/

Supervisory Patent Examiner, Art Unit 4183